

**TRANSLATION**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>In1358WO</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/EP2004/052739</b>	International filing date ( <i>day/month/year</i> ) <b>29.10.2004</b>	Priority date ( <i>day/month/year</i> ) <b>12.11.2003</b>
International Patent Classification (IPC) or national classification and IPC <b>G01S5/30</b>		
Applicant <b>INFINEON TECHNOLOGIES AG</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.	
2. This REPORT consists of a total of <u><b>11</b></u> sheets, including this cover sheet.	
3. This report is also accompanied by ANNEXES, comprising: a. <input checked="" type="checkbox"/> ( <i>sent to the applicant and to the International Bureau</i> ) a total of <u><b>8</b></u> sheets, as follows: <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> ( <i>sent to the International Bureau only</i> ) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).	
4. This report contains indications relating to the following items:	<b>CORRECTED VERSION</b>
<input checked="" type="checkbox"/> Box No. I	Basis of the report
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input checked="" type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input type="checkbox"/> Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-21 as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-23 received by this Authority on 12.08.2005 with letter of 29.07.2005
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets 1/6-6/6 as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. IV

Lack of unity of invention

1. ☐ In response to the invitation to restrict or pay additional fees the applicant has:
- ☐ restricted the claims.
  - ☐ paid additional fees.
  - ☐ paid additional fees under protest.
  - ☐ neither restricted the claims nor paid additional fees.
2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:
- ☐ complied with.
  - ☐ not complied with for the following reasons:  
  
See Supplemental Box
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☒ all parts.
  - ☐ the parts relating to claims Nos. \_\_\_\_\_

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1.	Statement		
	Novelty (N)	Claims <u>1-23</u>	YES
		Claims <u></u>	NO
	Inventive step (IS)	Claims <u>13, 16-23</u>	YES
		Claims <u>1-12, 14, 15</u>	NO
	Industrial applicability (IA)	Claims <u>1-23</u>	YES
		Claims <u></u>	NO
2.	Citations and explanations (Rule 70.7)		
1	Reference is made to the following documents:		
	D1: US-A-4 247 922 (JACKSON ET AL) 27 January 1981 (1981-01-27)		
	D2: US-B1-6 292 106 (SOLINSKY JAMES C ET AL) 18 September 2001 (2001-09-18)		
	D3: US-B1-6 553 013 (JONES ALAN HENRY ET AL) 22 April 2003 (2003-04-22).		
2	The present application does not meet the unity of invention requirements of PCT Article 33(1) because the subject matter of claims 1-2, 14 and 15 does not involve an inventive step within the meaning of PCT Article 33(3).		
3	CLAIMS 1-15		
3.1	Document D1 is considered the prior art closest to the subject matter of claim 1. It discloses a position-detection arrangement (the references between parentheses relate to document D1):		

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<p>i. having a plurality of ultrasound transmitters arranged along a path,</p> <p>ii. wherein the distance between adjacent ultrasonic transmitters is greater than 1 metre (D1: figure 1, column 3, lines 16-17; lines 46-50);</p> <p>The subject matter of claim 1 therefore differs from the known position detection arrangement in that:</p> <p>iii. at least three radiation receivers for receiving electromagnetic radiation are arranged along the path.</p> <p>The solution suggested in claim 1 of the present application cannot be considered inventive (PCT Article 33(3)), for the following reasons:</p> <p>The first features i.-ii. relate to ultrasonic transmitters which are arranged along a path. The second feature iii. relates only to electromagnetic radiation receivers, arranged along the same path. Claim 1 does not mention <b>how</b> these two features cooperate or interact (see claim 18). The problem to be solved by the present invention can therefore be understood only as that of finding a way of receiving electromagnetic radiation.</p> <p>However, a person skilled in the art knows that radiation receivers should be used to receive</p>

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<p>electromagnetic radiation. Consequently, the subject matter of claim 1 is <b>not</b> inventive (PCT Article 33(3)).</p>
3.2	<p>Dependent claims 2-12, 14 and 15 contain no features which, combined with the features of any claim to which they refer, meet the PCT requirements for inventive step (see documents D1 and D3 and the corresponding passages cited in the search report).</p>
3.3	<p>The combination of features contained in dependent claim 13 is not known from or suggested by the available prior art. The subject matter of claim 13 is therefore novel and inventive (PCT Article 33(2) and (3)).</p>
4	<p>CLAIMS 18-21</p>
4.1	<p>Document D1 is considered the prior art closest to the subject matter of claim 18. It discloses a position-detection method having the following steps (the references between parentheses relate to D1):</p> <ul style="list-style-type: none"><li>i. setting up a position-detection arrangement comprising a plurality of ultrasonic transmitters along at least one path (D1: figure 1; column 3, lines 46-50);</li><li>ii. introducing at least one identification unit into an area which is irradiated by at least one transmitter (D1: figures 1 and 2);</li></ul>

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<p>iii. carrying out an ultrasonic propagation time measurement from at least two transmitters to the identification unit and detecting at least one propagation date (D1: column 5, lines 29-32);</p> <p>iv. determining a fine position of the identification unit as a function of the propagation date (D1: column 5, lines 38-41);</p> <p>from which the subject matter of claim 18 differs in that:</p> <p>v. at least two radiation receivers or radiation transmitters, which each receive radiation from at least one area irradiated by a transmitter, are set up;</p> <p>vi. a coarse position of the identification unit is determined using at least two radiation transmitters or radiation receivers;</p> <p>vii. the fine position and the coarse position are linked to a position date.</p> <p>Consequently, the subject matter of claim 18 is novel (PCT Article 33(2)).</p> <p>The problem to be solved by the present invention is therefore understood to be that of providing a simple position-detection arrangement with high position-detection accuracy. The solution to the stated problem in accordance with features v.-vii. above is not disclosed in the prior art or in any</p>

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<p>of the other search report citations.</p> <p>Consequently, the subject matter of claim 18 is inventive (PCT Article 33(3)).</p> <p>4.2 Claims 19-21 are dependent on claim 18 and therefore likewise meet the PCT requirements for novelty and inventive step.</p> <p>5 CLAIMS 16, 17, 22 AND 23</p> <p>5.1 Document D2 is considered the prior art closest to the subject matter of claim 16. It discloses an identification unit having a memory unit in which an identification item is stored which distinguishes the identification unit from other, identically structured identification units (the references between parentheses relate to D2), having:</p> <ul style="list-style-type: none"><li>i. an ultrasonic receiver (D2: figure 3, reference sign 86),</li><li>ii. a radiation emitter (D2: figure 3, reference sign 90),</li><li>iii. a radiation receiver (D2: figure 3, reference sign 84), and</li><li>iv. a control unit which, depending on a synchronisation signal received using the radiation receiver, carries out an ultrasonic propagation time measurement and transmits the result by means of the radiation emitter (D2: column 4, line 30, to column 5, line 3).</li></ul>



Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<p>from which the subject matter of claim 16 differs by virtue of:</p> <p>v. at least one luminescent unit which can be controlled through the radiation receiver.</p> <p>The subject matter of claim 16 is therefore novel (PCT Article 33(2)).</p> <p>The problem to be solved by the present invention is understood to be that of distinguishing a identification unit for which a search is carried out from other identification units, in such a way that the search is facilitated. The solution to the above problem according to feature v. above is not disclosed in the prior art or the other search report citations. Consequently, the subject matter of claim 16 is inventive (PCT Article 33(3)).</p> <p>5.2 Claims 17, 22 and 23 are dependent on claim 16 and therefore likewise meet the PCT requirements for novelty and inventive step.</p>

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX IV.3

**Lack of unity of invention**

1.1 The present report does not examine the features preceded by "preferably" or "in particular", since these features are considered optional.

1.2 The Examining Authority has found that the international application contains several inventions or groups of inventions not linked by a single general inventive concept (PCT Rule 13.1), that is to say,:

I: Claims 1-15, 18-23: position-detection  
arrangement and method  
II: Claims 16, 17: identification unit.

The reasons are given below:

1.3 A comparison of the present groups of claims with document D1 indicates that the following features make a contribution over the prior art and can therefore be considered special technical features within the meaning of PCT Rule 13.2:

Group I (feature of claim 1):

- at least three radiation receivers for capturing electromagnetic radiation, which are arranged along a path.

## Supplemental Box

Group II (feature of claim 16):

- at least one luminescent unit which can be controlled through the radiation receiver.

1.4 The following problems can be considered solved by the special technical features:

Group I:

- How can electromagnetic radiation be received?

Group II:

- How can an identification unit for which a search is carried out be distinguished from other identification units, so as to facilitate the search?

These problems differ from each other.

Consequently, the specified groups of claims lack unity of invention both in terms of the special technical features and in terms of the problems solved (PCT Rule 13.1 and 13.2).